trimethylhydroquinone, hydroquinone monomethyl ether, p-tert-butylcatechol, 2,6-di-tert-butyl-4-methylphenol, 2,6-di-tert-butyl-4-dimethylamino-p-cresol and copper naphthenate.

The amount of curing retardant added is preferably 0.0001 to 0.1 parts by weight with respect to 100 parts by weight of the curable resin composition. Furthermore, the curing retardant may be added to the resin in advance or added at the time of use.

Moreover, various types of additives such as antifoaming agent, pigment, thinner or flame retardant may also be added as necessary.

Although any organic and inorganic dyes known in the prior art can be used as colorant, those having heat resistance and transparency are particularly superior, and those which do not remarkably obstruct curing of unsaturated resin are preferable.

Examples of the fiber reinforcing material used in fiber-reinforced plastic layer (C) of the present invention include glass fiber, aramid fiber, vinylon fiber, polyester fiber, Nylon fiber, carbon fiber, metal fiber and their combinations. Preferable examples are glass fiber and carbon fiber. In addition, there are no particular restrictions on the form of the fiber provided strengthening is obtained by the fiber during curing, examples of which include cloth, roving cloth, strands with roving cut out, chopped strand mat, and pair mat comprising stitching together roving cloth and chopped strand.

The usage ratio of the above fiber reinforcing material is 20 to 50 parts by weight, and preferably 30 to 40 parts by weight, with respect to 100 parts by weight of the polymerizable unsaturated resin composition composed of polymerizable unsaturated monomer and polymerizable unsaturated resin.

Production of the molded article of the present invention is carried out according to the following method. Curing accelerator and curing agent are blended into an intermediate layer composition comprising 30 to 150 parts by weight of filler and 1 to 4 parts by weight of thixotropic agent, with respect to 100 parts by weight of the above curable resin composition, the inside of the mold is coated with a mold releasing agent as necessary, and said intermediate layer composition is sprayed with a spraying apparatus and is cured to form the intermediate layer (B). Next, the fiber-reinforced plastic layer (C) is formed followed by removing the molded article from the mold and forming the surface layer (A) composed of a film or coating on the intermediate layer (B). Namely, a coating is applied, a coating film is formed, or a film is affixed to the intermediate layer

(B), and that coating or film is used as the surface layer (A). Preferably, after coating and curing a gelcoat resin inside the mold to form a cured gelcoat resin layer, the above intermediate layer composition is sprayed onto said layer at a thickness of preferably 0.4 to 2.0 mm with a sprayer to form the intermediate layer (B), followed by forming the fiber-reinforced plastic layer (C) by spraying and so forth the above polymerizable unsaturated resin composition and then curing at normal temperature or by heating to obtain a molded article. At that time, a spraying apparatus in which the curing agent is mixed internally or that in which the curing agent is mixed externally can be used for spraying. Examples of internal mixing type spraying apparatuses that are used include that made by Venus Gasmar, while examples of spraying apparatuses of the external mixing type include those made by Binks CO. and Higashi-giken Co., Ltd. In addition, mixtures in which the curing agent is blended into said resin composition in advance may also be sprayed using a general-purpose paint sprayer. The spraying apparatus is normally composed of a pump, a pressure regulator, a spray gun, and a line heater.

Depending on the particular application, after producing a gel-coated FRP molded article, a colored acrylic urethane coating and so forth is applied to the surface of the cured gelcoat resin surface of the molded article of the present invention.

The following provides an explanation of the molding mold for fiber-reinforced plastic molding of the present invention.

The molding mold for fiber-reinforced plastic molding of the present invention preferably includes the surface layer (A), the fiber-reinforced plastic layer (C), and the intermediate layer (B) as an intermediate layer between the surface layer (A) and the fiber-reinforced plastic layer (C). Although typical molds for fiber-reinforced plastic molding are composed of a cured gelcoat resin layer and a fiber-reinforced plastic layer, in the present invention, the providing of intermediate layer (B) results in an FRP molding mold that has high surface smoothness and little dependency on molding temperature. Next, a specific example is described for obtaining a mold for fiber-reinforced plastic molding of the present invention.

A method in which the so-called matrix is obtained by existing methods can be used for the method for obtaining a mold for fiber-reinforced plastic molding of the present invention. For example, the mold material is preferably a material that has low levels of moisture and resin components and undergoes little dimensional changes, and examples of

materials that can be used include homogeneous materials such as waterproof plywood, cedar, lauan, cypress and teak. Subsequently, routine putty filling and resin sealing are carried out, and for the resin for surface finishing coating, a resin composition containing styrene, acetone, curing agent and so forth in which a putty (skin putty) mixed with Aerosil, calcium carbonate, talc and so forth is added to a curing accelerator containing type of coating polyester resin, etc., is either spray coated or brush coated followed by curing. Continuing, the mold can then be sequentially wet polished using #200, #400 and #600 water proof sandpapers to smoothen the surface for use as a matrix. However, the matrix used in the present invention is not limited to that produced by the above method.

A mold releasing agent in the form of a wax-based or polyvinyl alcohol-based mold releasing agent is applied to the polished matrix followed by using the above gelcoat resin for the so-called mold gel coating, imparting the desired coloring and thixotropy, and either applying with a brush or spraying using a spray gun at a pressure of 3 to 6 kg/cm^2 to a thickness of about 0.5 to 0.8 mm to form the cured gelcoat resin layer. A gelcoat resin must be selected for the mold gel coating that has a durability that enables it to sufficiently withstand exposure to diluted monomers such as styrene during molding, namely has a superior solvent resistance, and has a superior cracking resistance that allows it to sufficiently withstand separation and impacts during product demolding.

Continuing, the intermediate layer (B) is molded by performing a procedure similar to that described above, followed by additionally laminating and molding the above fiber-reinforced plastic layer (C) as a backing to reinforce said molding mold. At this time, it is desirable to select and use the optimum resin composition and fiber reinforcing material according to the size, shape and so forth of the mold. Moreover, plywood, square bars, pipes and so forth can be used to further reinforce the mold as necessary.

The mold for fiber-reinforced plastic molding having a similar composition as the previously mentioned molded article obtained in this manner has a high surface smoothness and exhibits extremely little change in smoothness of the mold surface caused by differences in molding temperature, thereby making it extremely useful. Polishing can be performed sequentially using #400, #600, #800 and #1000 waterproof sandpapers as necessary, and the surface can be given a high finish by ultrafine buffing using a polishing compound. In addition, in the case of a molding mold having a complex shape or irregular surface, the mold can be used as a split mold. In addition, the mold can